Claims

1. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal, the optical channels including both boundary channels and central channels, the method comprising the steps of:

determining quality parameters for all the optical channels;

determining a spectral profile of the quality parameters; and

evaluating the spectral profile of the quality parameters to distinguish between a Kerr effect and a non-linear scattering process as a reason for the interactions.

2. A method for determining interactions between a member of optical channels in a wavelength division multiplexed signal as claimed in claim 1, the method further comprising the step of determining an amplitude histogram for each of the optical channels from which a Q factor is calculated as the respective quality parameter.

3. A method for determining interactions between a member of optical channels in a wavelength division multiplexed signal as claimed in claim 1, the method further comprising the step of determining a bit error rate for each of the optical channels as the respective quality parameter.

4. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 1, the method further comprising the step of determining a bit error rate during data transmission protected by an error correcting code.

5. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 1, wherein the quality parameters are determined and evaluated only for some of the

boundary channels and a plurality of the central channels.

6. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 2, wherein, if the values of the Q factor for the central channels are less than the values of the Q factor for the boundary channels, the Kerr effect is determined to be a governing effect and, if the values of the Q factor for the central channels are greater than the values of the Q factor for the boundary channels, the non-linear scattering process is determined to be the governing effect.

7. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 3, wherein, if the values of the bit error rate for the central channels are greater than the values of the bit error rate for the boundary channels, the Kerr effect is determined to be a governing effect and, if the values of the bit error rate for the central channels are less than the values of the bit error rate for the boundary channels, the non-linear scattering process is determined to be the governing effect.

8. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 2, wherein the Q factors for the individual optical channels in the wavelength division multiplexed signal are used to carry out different pre-emphasis in order to compensate for the Q factors.

9. A method for determining interactions between a number of optical channels in a wavelength division multiplexed signal as claimed in claim 3, wherein the bit error rate for the individual optical channels in the wavelength division multiplexed signal are used to carry out different pre-emphasis in order to compensate for the bit error rates.

10. A method for determining interactions between a number of optical

channels in a wavelength division multiplexed signal as claimed in claim 1, wherein dispersion effects are minimized before any measurements are taken.